

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-2 (canceled).

Claim 3 (currently amended) [[The]] A microphone array system according to claim 2,
including a plurality of microphones and a signal processing unit, comprising:
at least one microphone arranged along each axis direction; and
a received sound signal processing part for performing processing of sound signals received
at the plurality of microphones, having a directional sound signal calculating function, which is
essential for estimating a directional sound signal to an arbitrary direction based on the received
sound signal with a unidirectivity or bidirectivity pattern along each axis direction, and further
having at least one function of other sound signal processing functions at the same time,
wherein the plurality of microphones consist of only three unidirectional microphones, a first
unidirectional microphone being directed to a positive direction on a first axis, and second and third
unidirectional microphones being directed to positive and negative directions on a second axis that
is orthogonal to the first axis,
wherein the received sound signal processing part has a function for calculating a directional

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sound signal to an arbitrary direction based on a unidirectional received sound signal to a positive direction on the first axis and a bidirectional received sound signal to positive and negative directions on the second axis, and

wherein the received sound signal processing part has a sound source direction detecting function for detecting a sound source direction, using a power in each axis direction of a sound signal calculated by the directional sound signal calculating function and a cross-correlation thereof; and

further comprising the directional sound signal calculating function and the sound source direction detecting function at the same time, specifying a direction of a speaker by the sound source direction detecting function, calculating a directional sound signal to the direction of the speaker by the directional sound signal calculating function and performing desired sound enhancement processing to enhance the voice of the speaker in an arbitrary direction dynamically.

Claim 4 (original) The microphone array system according to claim 3, comprising a movable camera, wherein an improvement for a directivity of a received sound signal to an image capturing direction of the movable camera and an improvement for a directivity of a received sound signal to a sound input from an operator of the movable camera are switched for implementation, using the directional sound signal calculating function and the sound source direction detecting function at the same time.

Claims 5-6 (canceled).

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Claim 7 (original): ~~[[The]]~~ A microphone array system according to claim 6, including a plurality of microphones and a signal processing unit, comprising:

at least one microphone arranged along each axis direction; and

a received sound signal processing part for performing processing of sound signals received at the plurality of microphones, having a directional sound signal calculating function, which is essential for estimating a directional sound signal to an arbitrary direction based on the received sound signal with a unidirectivity or bidirectivity pattern along each axis direction, and further having at least one function of other sound signal processing functions at the same time,

wherein the plurality of microphones consist of only one unidirectional microphone and only one bidirectional microphone, the unidirectional microphone being directed to a first axis direction, the bidirectional microphone being directed to a second axis direction that is orthogonal to the first axis direction,

wherein the received sound signal processing part has a function for calculating a directional sound signal to an arbitrary direction based on a unidirectional received sound signal to a positive direction on the first axis and a bidirectional received sound signal to positive and negative directions on the second axis, and

wherein the received sound signal processing part has a sound source direction detecting function for detecting a sound source direction, using a power in each axis direction of a sound signal calculated by the directional sound signal calculating function and a cross-correlation thereof; and

further comprising the directional sound signal calculating function and the sound source

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direction detecting function at the same time, specifying a direction of a speaker by the sound source direction detecting function, calculating a directional sound signal to the direction of the speaker by the directional sound signal calculating function and performing desired sound enhancement processing to enhance the voice of the speaker in an arbitrary direction dynamically.

Claim 8 (original) The microphone array system according to claim 7, comprising a movable camera, wherein an improvement for a directivity of a received sound signal to an image capturing direction of the movable camera and an improvement for a directivity of a received sound signal to a sound input from an operator of the movable camera are switched for implementation, using the directional sound signal calculating function and the sound source direction detecting function at the same time.

Claim 9 (currently amended) A method for performing sound processing using a microphone array system including a plurality of microphones and a signal processing unit, wherein at least one microphone is arranged along each axis direction,

the method comprising the steps of:

~~an operation for~~ performing processing of sound signals received at the plurality of microphones, wherein the received sound signal processing ~~operation step~~ includes a step of calculating a directional sound signal to an arbitrary direction based on the received sound signal with a unidirectivity or bidirectivity pattern along each axis, which is essential, ~~and further~~

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~~performing at least one function of other sound signal processing functions at the same time;~~

wherein the plurality of microphones consist of only three unidirectional microphones, a first unidirectional microphone being directed to a positive direction on a first axis, and second and third unidirectional microphones being directed to positive and negative directions on a second axis that is orthogonal to the first axis, [[and]]

wherein the received sound signal processing operation step includes a step of calculating a directional sound signal to an arbitrary direction based on a unidirectional received sound signal to a positive direction on the first axis and a bidirectional received sound signal to positive and negative directions on the second axis,

wherein the received sound signal processing step further includes a step of detecting a sound source direction using a power in each axis direction of a sound signal calculated in the directional sound signal calculating step and a cross-correlation thereof, and

wherein the directional sound signal calculating step and the sound source direction detecting step are performed at the same time, thereby specifying a direction of a speaker by the sound source direction detecting step, calculating a directional sound signal to the direction of the speaker by the directional sound signal calculating step and performing desired sound enhancement processing to enhance the voice of the speaker in an arbitrary direction dynamically.

Claim 10 (currently amended) A method for performing sound processing using a microphone array system including a plurality of microphones and a signal processing unit, wherein

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at least one microphone is arranged along each axis direction,

the method comprising the steps of:

~~an operation for~~ performing processing of sound signals received at the plurality of microphones, wherein the received sound signal processing ~~operation~~ step includes a step of calculating a directional sound signal to an arbitrary direction based on the received sound signal with a unidirectivity or bidirectivity pattern along each axis, which is essential, ~~and further performing at least one function of other sound signal processing functions at the same time;~~

wherein the plurality of microphones consist of only one unidirectional microphone and only one bidirectional microphone, the unidirectional microphone being directed to a first axis direction, and the bidirectional microphone being directed to a second axis direction that is orthogonal to the first axis direction, [[and]]

wherein the received sound signal processing ~~operation~~ step includes a step of calculating a directional sound signal to an arbitrary direction based on a unidirectional received sound signal to a positive direction on the first axis and a bidirectional received sound signal to positive and negative directions on the second axis,

wherein the received sound signal processing step further includes the step of detecting a sound source direction using a power in each axis direction of a sound signal calculated in the directional sound signal calculating step and a cross-correlation thereof, and

wherein the directional sound signal calculating step and the sound source direction detecting step are performed at the same time, thereby specifying a direction of a speaker by the sound source

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direction detecting step, calculating a directional sound signal to the direction of the speaker by the directional sound signal calculating step and performing desired sound enhancement processing to enhance the voice of the speaker in an arbitrary direction dynamically.